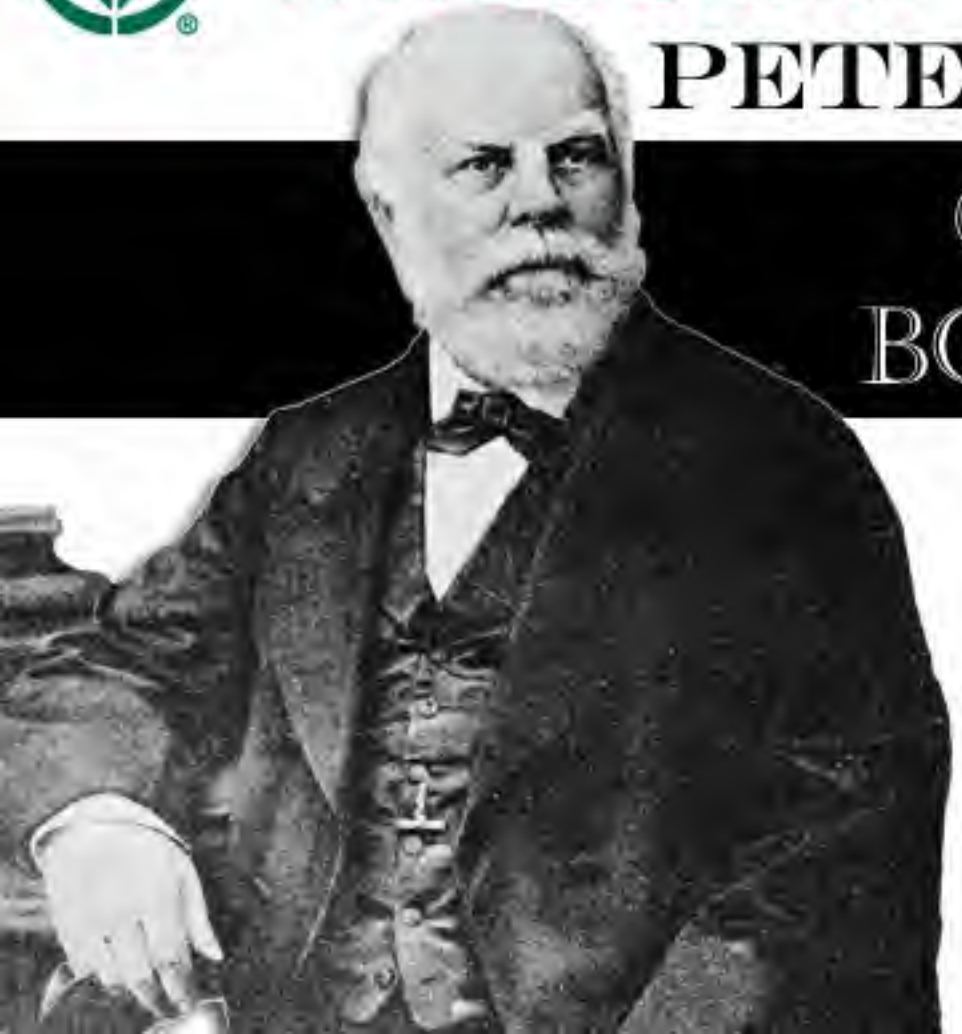
Missouri Botanical Garden
Peter H. Raven Library

George Engelmann Botanical Notebooks



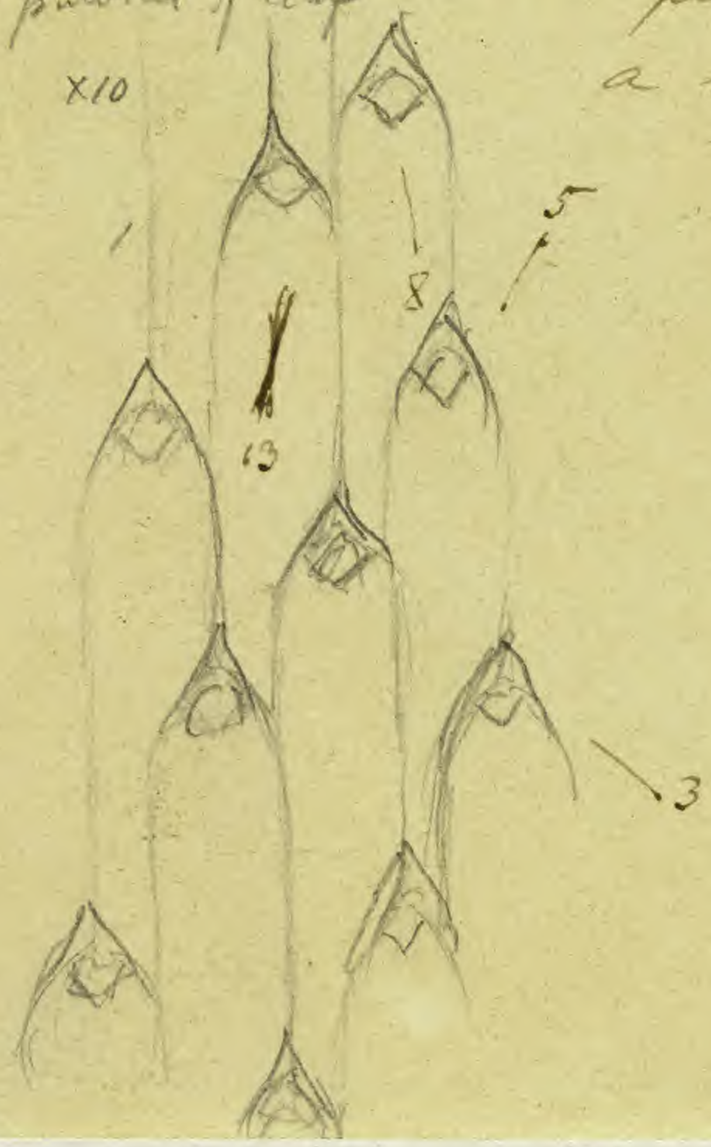
Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Picea alba Hab Anticosti April 14 1871

leaves longer, softer, more lax — 8/24 2/13 pulvini
therefore shorter, broader, branch therefore
less abundantly tuberate than in nigra
(fem. aments green?)

pulvilli of leaf
x10

pulvinus running above the leaf into
a short point, acute.



0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

12340

Leitch & Collies

CARRIAGES

South West Corner Fifth and Market Streets

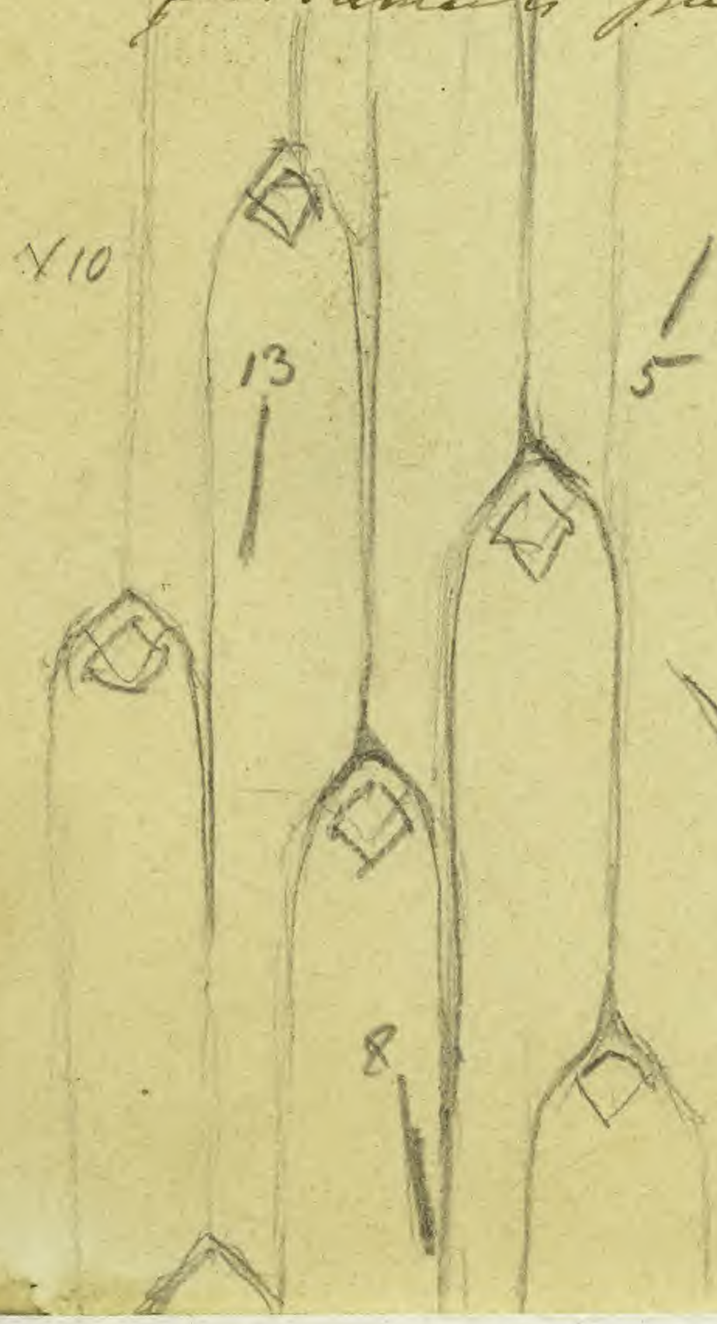
MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Picea nigra HB Nelson Apr 14 1871

leaves shorter, more closely set, in 8/21, pulvini therefore longer and longer decurrent, branch therefore more and more delicately velute than P. alba

fem. amenta purple

pulvini running above the leaf into a very short point, often obtuse



12341

Leitch & Collies

CHROMOS

South West Corner Fifth and Market Streets

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Picea alba & nigra

Difference in seeds

	alba	nigra
wing	oblong obovate narrower	obliquely oblong wider
seed	2½ – 3 mm long oblong obovate scarcely oblique half as long as wing or less	2 – 3¼ mm long obliquely obovate to triangular about half as long as wing

Engelmanni

wing oblique, narrower ~~than~~

seed 3½ – 4½ mm long (?) obliquely ovate about half as long as wing

12342

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Pinus excelsa H.B. Kunth. April 14 1871

Leaves in 3/21 fascicles, long decurved, running upwards, above the leaf into a sharp point, as long as the fascicles is wide.

X10

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

12343

Leitch & Collies

CHRONOGRAPHS

South West Corner Fifth and Market Streets

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

April 16 1871

Pinus Menziesii var

Crescent City Calif

Prof Brewer

leaves in 3/21 order

pulvinus short broad, quite obtuse above and scarcely produced beyond the base of the leaf

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

12344

Leitch & Collies

CONSERVATORY & GREENHOUSES

South West Corner Fifth and Market Streets

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

19 tab

Cotyledons and first leaves

Cotyledons smooth edged and first leaves — Silene noctiflora

Cotyledons and on keel first leaves or upper and lower keel, more rarely on edges, spinulose Dumortieria — Juncus alba exclusa obovata

Botanical Gazette.

A MONTHLY PAPER OF BOTANICAL NOTES.

Announcement for Vol. III.

THIS paper will continue for the ensuing year under the editorial management of JOHN M. COULTER and M. S. COULTER. Encouraged by the success of the past years, we are desirous of making the GAZETTE a *necessity* to Botanists.

In Vol. III, the leading articles, when needful, will be illustrated, in the hope that a greater interest and attractiveness may be added to our pages. Its object, as heretofore, will be to afford a rapid and convenient means of communication among Botanists. Thanking the Botanists of the country for their uniformly kind expressions in regard to the GAZETTE, as well as for the material which they have furnished us, we respectfully ask them to aid us again in our enterprise—both by notes and subscriptions.

Among those who have promised to contribute to the GAZETTE during 1878, are Prof. Thomas C. Porter, of LaFayette College; Prof. D. C. Eaton, of Yale College; Prof. Edward Tuckerman, of Amherst College; Dr. J. T. Rothrock, of University of Pennsylvania; Prof. A. N. Prentiss, of Cornell University; Prof C. E. Bessey, of Iowa Agricultural College; Dr. Geo. Vasey, Department of Agriculture, Washington, D C.; Dr. A. W. Chapman, Prof. Leo Lesquereux, Cole F. Austin, Rev. S. Lockwood, Hon. Geo. W. Clinton, Henry Willey, M. S. Bebb, Geo. E. Davenport, I. C. Martindale, Rev. Francis Wolle, Dr. A. P. Garber, Josiah Hoopes, J. G. Lemmon, Dr. H. C. Beardslee, Elihu Hall, Howard Shriver, T. S. Brandegee, Mrs. R. M. Austin, Mrs. Mary E. Pulsifer Ames.

The list, containing a large number of prominent western Botanists, gives promise of much new material from that region of country.

It has been thought best to begin Volume III with the year, as our subscriptions are nearly all arranged in that way, thus breaking into two volumes. No. 1 of Vol. III will appear about the middle of December.

TERMS.—Subscription, $1.00 per annum. Single numbers, 10 cents.

Please forward subscriptions immediately, that our books may be made up without delay. The paper will be invariably stopped when the subscription has run out. All subscriptions, unless otherwise ordered, will be considered as beginning with the current volume.

Address: JOHN M. COULTER,
Hanover, Ind., or
M. S. COULTER,
Logansport, Ind.

N. B.—We have for sale a limited supply of Vol. I. and II., bound in one volume, flexible backs, 156 pp., with complete index for both volumes. Price $2.00, invariably in advance. Address as above.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

12345

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

1508 - 1619

Abies Don - Loud Hb. 4.2293

Abhandl. Acad. Wiss Berlin 1827. 179 für Beuth
Picea Link Linnea 15. 516. (1841)

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Imperatoria verticillaris Cand
Angelica " L.

Spr I, 916
DC, 198

Alp graiae et coll.

H. B. Würzb. 1822

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

94321

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

ot, Berks.
ot Roots.
r 400 varieties, al
small quantities. CAT

ong roots for plan
g kinds, in small pots, 1
cation.
urserymen and Seed Me

RAGUS.—A larg
d Planting Seakale. Al
us. Special price to larg
y, Farnham.

LARCH. — Stron
feet. Special terms fo
, Groombridge, Tunbridg

gonias.
BRIDISED SEED
sted from their unequalle
first-prizes at all the Londo
s, free by post, single, 1s
s. each. All first quality
smen, Forest Hill, S.E.

ARGENTEUI
t and finest which come
d saved only from plant
per packet; plants of sam
d Grower, Bedford.

MITCHEL
llowing :—
per dozen.
dozen.
s. per 100.
GHAMII, Dwarf White
zen.
5 feet, extra, 36s. per do
urseryman, Stranraer.

re of
OSES.—A large an
sale. The Illustrated an
s, post-free for threepence
Roses post-free.
The Nurseries, Sawbridge

ade.
he leading sorts, fin
rooted, 90s. per 100. Term
LANDFORD, The Dorse

ANUF
SCH & LOMB
37 Maiden La
ester, N. Y.)

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

LOXINIA, assorted and mixtures.
UNNERA SCABRA and MANICATA.
LADIOLUS BRENCHLEYENSIS.
,, FLORIBUNDUS.
,, GANDAVENSIS.
,, SURPRISE.
,, GANDAVENSIS, complete collection.
ALTONIA (HYACINTHUS) CANDICANS, largest stock in the world.
ELLEBORUS NIGER (Christmas Rose), complete collection.
EMEROCALLIS, of sorts.
IEPATICA, complete collection.
IOTEIA (SPIRÆA) JAPONICA, strong clumps.
MANTOPHYLLUM (CLIVIA), complete collection.
RIS PUMILA, of sorts.
,, GERMANICA, most complete collection in the world.
SMENE (PANCRATIUM), of sorts.
NIPHOFIA (TRITOMA), complete collection.
MONTBRETIA POTTSII.
XALIS, of sorts, very large stock.
PHORMIUM, large collection.
POLYANTHUS TUBEROSA, of sorts.
PÆONIA ARBOREA (MOUTAN), all good sorts.
,, CHINENSIS (ALBIFLORA, HERBACEA), most complete collection in the world.
RANUNCULUS ASIATICUS and AFRICANUS (Persian and Turban), of all sorts.
SPIRÆA PALMATA, PALMATA ELEGANS, and others.
SPREKELIA FORMOSISSIMA.
,, GLAUCA, largest stock in the world.
TIGRIDIA, complete collection.
,, GRANDIFLORA ALBA, novelty.
YUCCA, of all sorts.

Prices on application.

CATALOGUES for the coming season in preparation.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer:—

RHODODENDRONS, Standard, beautiful scarlet and other varieties, with buds, 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each.
,, Dwarf, named, £5 per 100, or 18*s*. per dozen, selected.
AZALEA PONTICUM, bushy, 1 to 1½ foot, 40*s*. per 100, or 6*s*. per dozen.
,, AMŒNA, 50*s*. per 100, or 9*s*. per dozen.
KALMIA LATIFOLIA, 1 foot, 50*s*. per 100, or 9*s*. per dozen.
MENZIESIA POLIFOLIA ALBA and RUBRA, 20*s*. per 100, or 4*s*. per dozen.
ERICA CODONOIDES, nice bushy plants, 25*s*. per 100, or 5*s*. per dozen.
GAULTHERIA SHALLON, 25*s*. per 100, or 5*s*. per dozen.
PERNETTYA MUCRONATA and other sorts, 25*s*. per 100, or 5*s*. per dozen.
CUPRESSUS MACROCARPA, twice bedded, 1 foot, 12*s*. per 100; 2 feet, 20*s*. per 100.
CAMELLIA STOCKS, in single pots, 25*s*. per 100.
ROSES, Dwarf, the best varieties, 40*s*. per 100, or 6*s*. per dozen.
COB NUTS, extraordinary free bearers, 50*s*. per 100, or 9*s*. per dozen.

OLEARIA HAASTII
AZARA MICROPHYLLA
ESCALLONIA MACRANTHA
AMPELOPSIS VEITCHII
SKIMMIA OBLATA and FRAGRANS
GRISLINIA LITTORALIS
IVIES and HONEYSUCKLES of sorts
} All in pots, 9*s*. per dozen, or 1*s*. each.

And every other description of well-grown NURSERY STOCK, CATALOGUES of which may be had on application.

---

well set with buds for winter flowering. VERY REASONABLE Prices will be quoted on application.

Royal Nurseries, Ascot, Berks.

50,000 Dahlias, Pot Roots.

KELWAY AND SON offer 400 varieties, also Single Dahlia Seed in large or small quantities. CATALOGUES free.—Langport, Somerset.

STRAWBERRIES.—Strong roots for planting, 4*s*. per 100; the best leading kinds, in small pots, 16*s*. per 100. Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SEAKALE and ASPARAGUS.—A large quantity of strong forcing and Planting Seakale. Also first-class 2-yr. and 3-yr. old Asparagus. Special price to large buyers. S. BIDE, Alma Nursery, Farnham.

LARCH — LARCH — LARCH. — Strong transplanted, 2 to 3 and 3 to 4 feet. Special terms for large quantities.

EDWIN HALLAMBY, Nurseries, Groombridge, Tunbridge Wells.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, superior to all others, is harvested from their unequalled collection, which was again awarded first-prizes at all the London great Flower Shows. Sealed packets, free by post, single, 1*s*., 2*s*. 6*d*., and 5*s*.; double, 2*s*. 6*d*. or 5*s*. each. All first quality. The Trade supplied.

JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

EARLY PURPLE ARGENTEUIL ASPARAGUS.—The earliest and finest which comes into Covent Garden Market. Seed saved only from plants producing very large heads, 1*s*. 6*d*. per packet; plants of same type, 10*s*. per 100.

THOMAS LAXTON, Seed Grower, Bedford.

GARLIES MITCHELL begs to offer the following:—

IVY, Irish, 2 to 2½ feet, trained, 4*s*. per dozen.
,, Silver, pots, 2 to 3 feet, 6*s*. per dozen.
LILAC, Purple, 3 to 4 feet, fine, 10*s*. per 100.
RHODODENDRON CUNNINGHAMII, Dwarf White, fine plants, 50*s*. per 100.
YEW, Irish, fine, 7 feet, 20*s*. per dozen.
PICEA NORDMANNIANA, 4 to 5 feet, extra, 36*s*. per doz.

GARLIES MITCHELL, Nurseryman, Stranraer.

Special Culture of

FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.

THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

To the Trade.

STANDARD ROSES, the leading sorts, fine heads, good stems, and well rooted, 90*s*. per 100. Terms cash.

EXECUTORS of the late H. BLANDFORD, The Dorset Nurseries, Blandford.

S. DIXON AND CO.'S NEW JAPANESE CHRYSANTHEMUMS of 1882.—We were awarded four First-class Certificates for the above this season. Cuttings of the whole set of twenty varieties for 20*s*., or twelve cuttings, our selection, for 10*s*. To insure large Exhibition Flowers, intending growers should start at once with good autumn-struck plants. We can now supply a selection of twelve of our new ones, including Chinaman, R. Ballantine, and J. Starling, splendid plants, for 20*s*.

Our new Illustrated Seed Catalogue, also Select List of Chrysanthemums, Roses, Fruit Trees, &c., post-free, on application.

S. DIXON AND CO., Amhurst Nurseries, Auton Street, Hackney, E.; and City Seed Warehouse, 34, Moorgate Street, London, E.C.

RASPBERRY CANES. — 200,000 of the celebrated Carter's Prolific (see *Mark Lane Express*, Aug. 1, 1881, p. 1044) to dispose of, at £2 per 1000. Samples of 100, 5*s*., packing included, free at Railway Offices in London. No CHANGE of rail. Payments to accompany Orders. Postal Orders on Knockholt. Apply to

ALBERT AND EDWIN BATH, Colgates Farm, Sevenoaks, Kent.

Sow now Wright's Prize Celery and Cucumber Seeds.

WRIGHT'S Grove Red, Grove Pink, Grove White, and Giant White CELERIES; also Wright's Wonder and Rollisson's TELEGRAPH CUCUMBERS. All 1*s*. packets; the collection of six varieties free by post for 5*s*.

These have all been proved to be the best varieties that can be sown. Trade prices quoted on application.

W. WRIGHT, Seedsman, Market Square, Retford, Notts.

SINGLE DAHLIAS.—Seed of these, sown early in spring, will produce flowers in abundance the first season. Packets containing about 300 Seeds, with directions for culture, post-free for 2*s*. 6*d*. This strain we guarantee to be one of the finest and choicest existing, being saved from none but best varieties, including whites.

KEYNES AND CO., The Nurseries, Salisbury.

Extra Strong Plants of the following:—

CABBAGE.—Early Battersea, Enfield Market, Nonpareil, Oxheart, and Robinson's Champion Drumhead, 3*s*. per 1000: Red Drumhead, 5*s*. per 1000. LETTUCE.—Brown Cos, Hardy Green Cos, and All the Year Round, at 4*s*. per 1000. Special low quotations for large quantities.

W. VIRGO, Wonersh Nurseries, near Guildford, Surrey.

PLANTING SEASON.

LARCH (Larix europæa), 15 to 20 inches, 18*s*. per 1000; 1½ to 2 feet, 20*s*. per 1000; 2 to 3 feet, 25*s*. per 1000; 2½ to 3½ feet, 35*s*. per 1000; 3 to 4 feet, 40*s*. per 1000.

The above are grown on high situations, and are well-rooted, branchy trees, with good leads. Apply to

JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

EARLIEST OF ALL PEA.—Those who wish for the earliest dish of Peas in the year will sow the EARLIEST OF ALL PEA (Laxton). Price 5*s*., sealed quart; 2*s* 6*d*. sealed pint, of all Seedsmen and

HOOPER AND CO., Covent Garden, London, W.C.

MANUFACTURED AND SOLD BY

1508-36

Missouri Botanical Garden
copyright reserved
0 1 2 3 4 5 6 7 8 9 10 cm

OUR DESCRIPTIVE CATALOGUE of VEGETABLE and FLOWER SEEDS, GARDEN REQUISITES, &c., for 1883, will be forwarded post-free on application. It is of a most practical character, supplying all necessary information needed by Amateurs and others who may have a difficulty in making a suitable selection. We have this season introduced a novelty in Seed Catalogues by inserting a very complete

GARDENERS' CALENDAR AND ALMANAC,

which gives some appropriate and seasonable suggestions of work to be done on each day of the year, and also a concise list of operations in the KITCHEN, FRUIT, FLOWER GARDENS, and GREENHOUSE throughout the year.

All GARDEN SEEDS, under certain limitations, are *delivered Carriage Free.*

THOMAS KENNEDY AND CO.

Seed and Nursery Establishment,
Dumfries, January, 1883.

RICHARD SMITH & Co. WORCESTER

SEVENTY-FOUR ACRES of FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour, and warranted true to name. Descriptive Price LIST, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for 1*d.* stamp.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST OF STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for 1*d.* stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for 1*d.* stamp.

ALL KINDS of GARDEN SEEDS, of first quality. BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See LISTS, which may be had on application.

RICHARD SMITH & Co. WORCESTER

QUEEN OF THE VALLEY	..	3 0	11 6	Fine hand Sam
SCHOOLMASTER	.. ..	2 0	7 0	
MAGNUM BONUM	.. ..	1 9	6 0	
SCOTCH CHAMPION	.. ..	1 9	6 0	

LIST of 50 BEST SORTS Post-free.

All Potatos of 10s. value Carriage Free to any Railway Station.

All the Best Vegetables & Flowers in Cultivation.

Full Particulars on application.

JOHN K. KING,

ROYAL SEEDSMAN,

COGGESHALL, ESSEX.

GEO. JACKMAN & SON,

(ESTABLISHED 1810,)

Cultivators of

FRUIT and FOREST TREES,
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.

THE CLEMATIS
A SPECIALITY.

Descriptive Priced Catalogues free.

WOKING NURSERY, SURREY.

VEGETABLE & FLOWER SEEDS SEED POTATOS. TOOLS &c

BEST QUALITY - CARRIAGE FREE.

PRICED CATALOGUE - POST FREE.

JAMES DICKSON & SONS

SEED-GROWERS.
108 EASTGATE ST. CHESTER

The most wonderful cropping Potato in the World. Price 3*s.* per peck, 10*s.* 6*d.* per bushel, 20*s.* per cwt., £18 per ton. Two hundred other kinds, including many novelties not before offered, now ready for sending out. Beautifully Illustrated CATALOGUE gratis and post-free to all intending purchasers.

DANIELS BROS., NORWICH.

ZONAL PELARGONIUMS.

ANNUAL OFFER of SURPLUS STOCK.

Potted singly, in 3-inch pots, in Autumn.

VESUVIUS .. .. per 100 7*s.*
FIRE KING, splendid bedder .. .. .. ,, 8*s.*
M. DE LESSEPS, large scarlet, fine habit .. ,, 10*s.*

To be sent early in March. Orders booked at once. Cash before sending. Not less than fifty of any variety sent.

HENDER & SONS, Nursery, Plymouth.

The Largest Rose Gardens in England.

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

ROSES ON OWN ROOTS.

A large quantity of very fine plants of Hybrid Perpetuals, Bourbons, Hybrid Chinas, &c List of varieties, with prices, on application.

CRANSTON'S NURSERY and SEED CO

(LIMITED),

KING'S ACRE, HEREFORD.

Hooper's

Splendid Seeds and Bulbs at low prices

The Catalogues free to buyers

Covent Garden Seed Warehouse

PRIC

ICRO

Physicians'

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

s. per peck, 10s. 6d. per
£18 per ton. Two
uding many novelties no
dy for sending out. Be
ALOGUE gratis and p
urchasers.

BROS., NORWI

PELARGONIUM

FER of SURPLUS S
ly, in 3-inch pots, in Autumn.
endid bedder .. .. per
S, large scarlet, fine habit "
March. Orders booked at
ess than fifty of any variety
SONS, Nursery, Plymou

Rose Gardens in Eng

N'S NURSE
TABLISHED 1785).

ON OWN ROOTS
ty of very fine plants
Bourbons, Hybrid Chi
vith prices, on applica

NURSERY and SE
(LIMITED),
CRE, HEREFORD

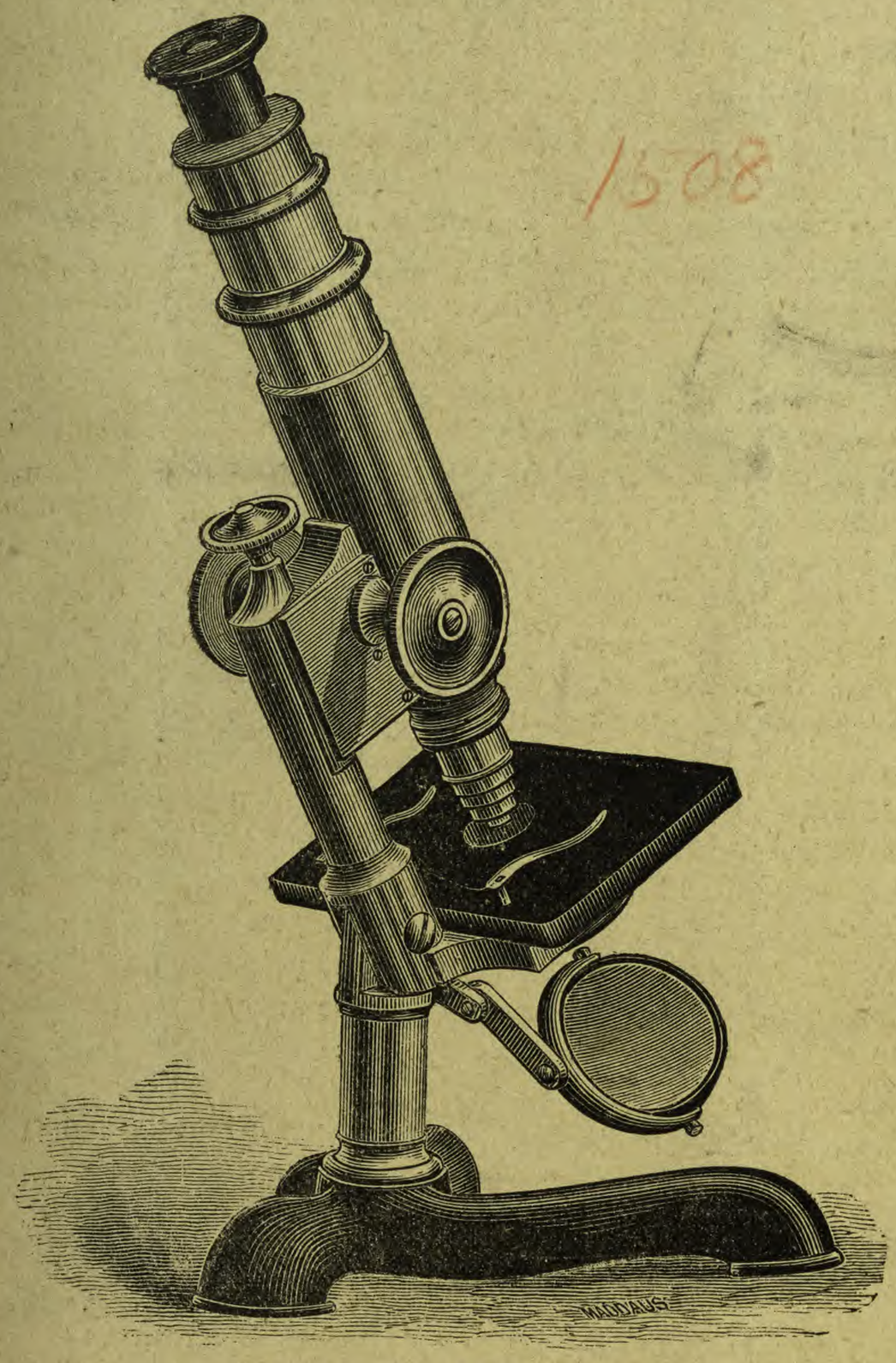
Splendid Seed
Bulb
ent Garde
Warehou

Seeds

PRICE LIST

OF

MICROSCOPES



Physicians' Microscope.

MANUFACTURED AND SOLD BY

THE BAUSCH & LOMB OPTICAL CO.

37 Maiden Lane,

(Factory at Rochester, N. Y.) NEW YORK.

1308

MISSOURI BOTANICAL GARDEN
copyright reserved
0 1 2 3 4 5 6 7 8 9 10 cm

12348

PREFACE.

In the following pages we offer a descriptive and illustrated Price-List of Microscopes and their accessories, of our own manufacture. In the construction of the Microscopes it has been our aim to unite stability, firmness and compactness, with as great simplicity of construction as is compatible with the purpose for which the instruments are intended, while at the same time we have endeavored to apply to this department of industry those approved principles of manufacture which result in the production of superior goods at moderate prices.

The general design of these Microscopes has been perfected under the direction of some of the ablest Microscopists in the United States, and the mechanical and optical workmanship is under the superintendence of

E. GUNDLACH,

so long and so favorably known, as a maker of first-class Microscopes and Objectives.

The Microscopes described in the following pages, have certain important features which distinguish them from all others in the market. Prominent amongst these are: Our new patent fine adjustment (see page 3), the german silver slide carrier described on page 5, the periscopic eye-pieces described on page 15, the hemispherical immersion condenser, described on pages 13 and 14, etc., etc.

For the stages of our Microscopes we have adopted either hard-rubber, which, besides other advantages, cannot be injured by liquids in ordinary use, or thick glass plates highly polished, which reduce the friction of the bearings of the slide carrier to a minimum.

Our present series of objectives, constructed after new formulas, worked out by Mr. Gundlach, are unsurpassed in all those qualities that constitute a first class working objective. The lower powers have the advantages of depth of focus and freedom from color; the higher ones will be found to unite therewith great resolving power, and the greatest possible working distance, as far as these latter qualities can be obtained without encroaching on the former. As an illustration, we may refer to our dry 1-6 inch objective. In this objective the resolving power has been developed at the expense of the working distance, as far as possible for a *non* immersion objective, and the working distance has been correspondingly reduced to its utmost limits. This objective is therefore especially adapted for observations of diatoms, where very thin covers are employed.

We furnish each of our Microscopes, except Nos. 510, 520 and 522, with an Eye-piece Micrometer. Rules for using the latter will be found printed on the back of the Magnifying Table, accompanying each Microscope. These rules show a simple, easy and reliable method of measuring by means of an Eye-piece Micrometer, the size of the object under examination.

The almost indispensable camera lucida we construct in a new form, greatly simplified, having not only the advantages of other well known constructions, but needing simply to be attached to the Eye-piece to be at once in proper position. We make them of different sizes so as to fit any Eye-piece. The axis and one of the pillars are marked so as to indicate the proper degree of inclination required, to place the camera lucida 10 inches above the table.

As a good magnifier is altogether indispensable to the Microscopist, we have undertaken the manufacture of three of the best kinds, the aplanatic triplet, a magnifier with two achromatic double lenses, and the Coddington magnifier.

Our microscopes are furnished with hard-rubber Eye-pieces, which material we consider for several reasons best adapted to the purpose, and the prices quoted herein are calculated accordingly. If desired, we furnish brass Eye-pieces instead, charging the difference in price as stated on page 10.

The sliding parts of the tubes in our instruments are all nickel-plated.

All the cuts of Microscopes in this catalogue are one-third of their respective sizes.

BAUSCH & LOMB OPTICAL CO.

NEW YORK, *September* 1, 1877.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN